

A REVISION OF *ATYLOSIA* (LEGUMINOSAE) IN AUSTRALIA

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Summary

Ten species (9 endemic) of *Atylosia* occur in Australia. Virtually all species are confined to the tropics. They are described and a key to their identification is given. *A. latisejala* is a new species based on *A. grandifolia* Benth. var. *calycina* Benth. *A. acutifolia* and *A. pubescens* are new combinations based on *Rhynchosia acutifolia* F. Muell. ex Benth. and *Tephrosia pubescens* Ewart & Morrison respectively. *A. mareebensis*, *A. reticulata* subsp. *maritima*, *A. scarabaeoides* var. *pedunculata* and *A. pubescens* var. *mollis* are described as new. *A. grandifolia* Benth. is conspecific with *A. reticulata* (Dryander) Benth. and *Rhynchosia quadricullosa* Domin with *A. acutifolia*. Lectotypes have been chosen for *A. acutifolia* and *A. cinerea*.

Ten species of *Atylosia* occur in Australia, nine of them endemic. They are virtually confined to the tropics with their greatest development in north-eastern Queensland and the Kimberley region of Western Australia. Further studies are needed to define more exactly the geographic ranges and range of variation of some species, particularly *A. reticulata*, *A. latisejala* and *A. pubescens*.

Generic limits within the Cajanineae are not well defined (Pedley 1981) but if *Rhynchosia acutifolia* is transferred to *Atylosia* then the Australian species of *Atylosia* become a reasonably coherent group. Morphologically and genetically (Kumar *et al.* 1958) *Atylosia* and *Cajanus* are closely related and may not be distinct. *C. cajan* however is known only in cultivation and exhibits an extremely wide range of variation and is probably best maintained in a genus apart from *Atylosia*. The position of *C. kerstingii* Harms, a native of West Africa, which has a well defined rim aril (Lackey 1977) will have to be reconsidered.

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|--|--------------------------|
| 1. Stems trailing, slender | 2 |
| Stems usually erect, or decumbent, stout | 4 |
| 2. Leaflets up to 3.5 x 1.7 cm. Pods not mottled with purple, valves coriaceous with prominent transverse grooves between the seeds. 1. <i>A. scarabaeoides</i> | |
| Leaflets up to 10.5 x 6 cm. Pods usually mottled with purple, valves thin; grooves between seeds not prominent | 3 |
| 3. Leaflets broadly obovate, obcordate or suborbicular | 2. <i>A. marmorata</i> |
| Leaflets narrowly ovate, acute | 3. <i>A. mareebensis</i> |
| 4. Leaflets digitately trifoliolate | 5 |
| Leaflets pinnately trifoliolate | 6 |
| 5. Leaflets elliptic or elliptic obovate, up to 2.5 cm wide, lateral ones never suppressed. Pods villous tomentose | 4. <i>A. pluriflora</i> |
| Leaflets narrowly ovate—oblong, up to 0.8 cm wide, lateral ones suppressed on flowering shoots; pods pubescent, short hairs intermixed with long pale ones | 5. <i>A. lanceolata</i> |
| 6. Calyx lobes broadly ovate—lanceolate with a distinct midrib, pink, conspicuous in fruit | 8. <i>A. latisejala</i> |
| Calyx lobes linear to narrowly ovate, occasionally with a rib, but neither pink nor conspicuous in fruit | 7 |
| 7. Leaflets not rugose, venation fine. Pod 2 or 3—seeded | 6. <i>A. acutifolia</i> |
| Leaflets at least slightly rugose, venation usually coarse and conspicuous on lower surface. Pod 2—6—seeded | 8 |
| 8. Pod with short velvety indumentum; calyx ribbed, with \pm appressed hairs | 7. <i>A. cinerea</i> |
| Pod with long hairs, with or without short velvety indumentum; calyx not ribbed, with spreading hairs | 9 |
| 9. Leaflets without silvery sheen | 9. <i>A. reticulata</i> |
| Leaflets usually with silvery sheen | 10. <i>A. pubescens</i> |

1. *Atylosia scarabaeoides* (L.) Benth., in Miq., Pl. Jungh. 242 (1852). Based on *Dolichos scarabaeoides* L., Sp. Pl. 726 (1753). **Types:** Ceylon, *Hermann* 1:34 & 2:60 (BM, syn., not seen); *Burman* 900.9 (LINN, syn. microfiche).

Trailing perennial, branchlets slender, softly tomentose. Leaves pinnately trifoliate; petioles 1–1.2 cm long; rachises 2–6 mm; leaflets narrowly elliptic, lateral ones obliquely elliptic, 1.8–3.5 x 0.5–1.2 cm, tips obtuse or acute, bases obtuse, surfaces pubescent, rugose, lateral nerves 3–5 pairs, oblique, basal pair very long, obliquely arched and ascending along the margins; terminal petiolules 0.3–1 cm long, lateral ones about 2 mm. Flowers 1—paired or in a few flowered racemes, axillary. Racemes 0.5–15 cm long; flowers 7–10 mm long; pedicels 5 mm long; calyx lobes narrowly ovate-acuminate. Pods 1.7–2 x 0.6–0.8 cm, oblong, apex truncate with a minute apical point or distinct, short tip, finely velvety tomentose with long and short brown hairs; valves coriaceous with prominent transverse grooves between the seeds; seeds 2–5.

Usually in open woodlands. Flowers and fruits April to August.

1a. *A. scarabaeoides* var. *scarabaeoides*

A. scarabaeoides var. *queenslandica* Domin, Biblioth. Bot. 89:227 (1926). **Type:** in xerodrymio apud opp. Pentland, Feb 1910, *Domin* "4870" (PR, holo).

Flowers 1—paired or in few flowered racemes to 2.5 cm long. Pods 2 x 0.6 cm softly tomentose with long and short brown hairs, apex with distinct short tip; seeds 3–5, oblongoid, dark brown, aril not as broad as the seed.

Usually in open and cleared woodlands on heavy soil. Flowers and fruits April to August.

Queensland: COOK DISTRICT: "Lakeland Downs", ca 15°50'S 144°40'E, May 1975, *Byrnes* 3463 (BRI). NORTH KENNEDY DISTRICT: Kirklea Pastoral Holding near Ingham, May 1959, *Gude* (BRI); Burdekin River area, 20°19'S 147°17'E, *Staples* IBS 2115 (BRI).

1b. *A. scarabaeoides* var. *pedunculata* Reynolds & Pedley, varietas nova;

var. *scarabaeoides* habitu minus ramoso, foliis vulgo minus rugosis membranaceisque, racemis semper in pedunculis 6–15 cm, longis portatis, leguminibus brevioribus, 1.7 x 0.8 cm longis, subtiliter velutine tomentosis sine pilis longis obtusis truncatis acuminibus minutis apicalibus, seminibus 2–3, late obovoideis, rufescentibus, arillo crassissimo seminis latitudinem aequanti praeditis differt. **Types:** *McKee* 9363 (BRI, holotypus).

Differs from *A. scarabaeoides* var. *scarabaeoides* in having a more open habit, leaves usually less rugose and more membranous, racemes always on long peduncles 6–15 cm long. Pods shorter, 1.7 x 0.8 cm, truncate with minute apical points, usually finely velvety tomentose without long hairs; seeds 2 or 3, broadly ovoid, reddish brown with very thick aril as broad as the seeds.

North-eastern Queensland to Western Australia usually on sandy lateritic soils in open forest. Flowers and fruits April to May.

Western Australia. Camballin, May 1970, *Power* 884 (PERTH); near Gariyeli Creek, Prince Regent River, 15°32'S 125°13'E, Aug 1974, *George* 12608 (PERTH). **Northern Territory.** Gunn Pt., 12°10'S. 131°05'E., May 1973, *Dunlop* 3051 (DNA, BRI, NT); Lloyd Creek, 12.7 miles NW of Pine Creek, Mar 1961, *Chippendale* NT 7625 (BRI). **Queensland.** COOK DISTRICT: Parada, Apr 1962, *McKee* 9363 (BRI).

Atylosia scarabaeoides is widespread in the tropics of the Old World. The var. *pedunculata* is a distinctive variant that may be worthy of higher rank, but until the species is studied throughout its range it is preferable to consider it as a variety only.

2. *Atylosia marmorata* Benth., Fl. Aust. 2:263 (1864). **Types:** Upper Victoria River, *Mueller*; Islands of Gulf of Carpentaria, *Brown*, *Henne*; Nebo Creek & Bowen River, *Bowman*; Port Denison, *Fitzalan* (none seen).

Annual or perennial with trailing stems, branchlets hirsute or tomentose. Leaves pinnately trifoliolate; stipules cordate to 4 mm long; petioles 1.5–6.5 cm; rachises 0.6–1.4 cm; leaflets broadly obovate, obcordate or suborbicular, broader than long, 2.5–8 x 2.5–6 cm, tips obtuse, blunt or retuse, bases obtuse, surfaces pubescent or puberulent; terminal petiolules 0.6–1.5 cm, lateral ones 1–2 mm long; stipellae linear to 2 mm; Inflorescence racemose, 1–4 per axil, 4–7 (–50) cm long, peduncles slender, sometimes branched, bearing 1 or 2 flowers at long intervals. Flowers about 1.2 cm long; pedicels 3–7 mm long. Calyces 0.5–1.2 x 0.6 mm, lobes ovate acuminate, 4–6 mm long, pubescent. Petals 1.2 cm long. Pods oblong 1.5–4 x 0.8–1.4 cm, valves usually mottled with purple, puberulent, thin with fine transverse reticulations, grooves between the seeds faint; apiculate tips 2–8 mm long; seeds 2–5, broadly obovoid or oblongoid, reddish brown, aril thick and fleshy.

Widely spread in northern Australia, usually in cleared areas and open forests on sandy soil. Flowers and fruits February to November.

Western Australia. Geikie Gorge, Fitzroy River, Aug 1965, *Beaglehole* ACB 11187 (PERTH); near junction of Hann and Fitzroy R., Jun 1905, *Fitzgerald* (PERTH); Razorback, near Carlton Beach, Ord. R., Apr 1958, *Burbidge* 5748 (PERTH). **Northern Territory.** 15 miles S of Inningurra Ra., Aug 1971, *Maconochie* 943 (NT, PERTH); 16 miles SE of Pine Creek, Mar 1961, *Chippendale* NT 7573 (BRI, PERTH); Groote Eylandt, Apr 1948, *Specht* 258 (BRI); Settlement Creek, Feb 1923, *Brass* 266 (BRI). **Queensland.** BURKE DISTRICT: Adels Grove, Apr 1950, *de Lestang* 460 (BRI). COOK DISTRICT: Newcastle Range, Apr 1906, *Blackman* (BRI); 50 miles SW of Cooktown, 15°50'S 144°50'E, Jun 1969, *Wright* (BRI); Southedge, 17°01'S 145°23'E, Jun 1975, *Staples* IBS 2011 (BRI). NORTH KENNEDY DISTRICT: 40–50 miles S of Mt Garnet, Nov 1941, *Blake* 14429; (BRI, K); Burdekin River area, 20°19'S 147°17'E, Apr 1975, *Staples* IBS 2110 (BRI). SOUTH KENNEDY DISTRICT: "Yarrowmere" Stn, 21°30'S 145°50'E, Oct 1968, *Compton*, & Apr 1969, *Walker* (BRI).

3. *Atylosia mareebensis* Reynolds & Pedley, species nova affinis *A. marmorata* Benth. foliolatis angustioribus differt. **Typus: *Pedley* 2249 (BRI, holotypus, CANB, K, isotypi distribuendi).**

Repens planta annua vel perennis emoriens quoque annuum; ramulosi costati villosi pilis patentibus usque 1 mm longis; stipulae 4 mm longae cordatae caducae. Folia dissita pinnate trifoliolata; petiolus ramulorum similis 2.5–12 cm longus; stipellae lineares circa 2 mm longae; petioluli villosi circa 2 mm longi; rhachis 8–14 mm longa; laminae anguste ovatae, acutae, 9–11 x 1.2–2.2 cm, reticulate venosae in pagina infera, supra sparsim pubescentes vel ± glabrae et infra villosae in venis et glandulis sessilibus translucens flavidus praeditae. Flores in sparsis racemis usque 25 cm longis in axillis extremitatem ramulorum versus dispositi; pedicelli 1.5–5 mm longi a bracteis 2 mm longis subtenti. Calyx pubescens circa 1 cm longus corolla leviter brevior, lobis linearilanceolatis tubo 2plo longioribus. Legumina eorum *A. marmorata* similis.

Trailing annual or perennial dying back each year; branchlets ribbed, villous with spreading hairs up to 1 mm long; stipules 4 mm long, cordate, deciduous. Leaves scattered, pinnately trifoliolate; petiole similar to branchlets 2.5–12 cm long; stipellae linear, ca 2 mm long; petiolules villous ca 2 mm long; rachis 8–14 mm long; laminae narrowly ovate, acute, 9–11 x 1.2–2.2 cm, prominently reticulately veined on lower surface, pubescent or ± glabrous on upper surface, villous on veins and with sessile translucent pale yellow glands beneath. Flowers in open racemes to 25 cm long in axils towards the ends of the branchlets; pedicels 1.5–5 mm long, subtended by bracts 2 mm long. Calyx pubescent ca 1 cm long, slightly shorter than the corolla, lobes linear lanceolate twice as long as the tube. Pods similar to those of *A. marmorata*.

Queensland. COOK DISTRICT: Gorge Creek, 8 miles [13 km] W of Mareeba, Apr 1967, *Pedley* 2249 (BRI, CANB, K); Mareeba, Jan 1962, *Downes* 6202.1 (BRI).

Atylosia mareebensis is known only from two collections. It has been collected more recently in the type locality but neither flowers nor fruits were obtained. In habit, indumentum, texture of the leaves, and in the pods it is remarkably similar to the widespread *A. marmorata* but it differs in having narrowly ovate leaves.

4. *Atylosia pluriflora* F. Muell. ex Benth., Fl. Aust. 2:264 (1864). **Types:** Burdekin Expedition, *Fitzalan* (MEL); near Princhester *Bowman* (MEL); Thozet's River, *Dallachy* (MEL); Rockhampton, [*Thozet*] (MEL).

Low erect or procumbent shrubs 0.5–0.7 m high, all parts softly villous tomentose with white hairs; young leaves rusty tomentose on the nerves. Leaves digitately trifoliolate; petioles 1–2.5 cm long; leaflets elliptic to elliptic-obovate or obovate, 1.5–6.5 x 0.5–2.5 cm, tips obtuse, rarely acute, mucronate or emarginate, bases cuneate, glaucous above, pale below, drying dark grey, very rugose, soft; lateral nerves 5–7 pairs, oblique, ascending, arched at tips, impressed above; reticulate venation compact, raised below, bullate between reticulation and very hairy on the nerves; petiolules 1–2 mm long; stipellae absent. Inflorescences axillary, peduncles 2–8 cm long bearing a subumbellate raceme of about 7 flowers. Flowers 1.7 cm long; pedicels 0.5–1 cm long. Calyces 0.7–1.3 x 0.4 cm, lobes narrowly ovate, acuminate, flexuose, 0.5–0.6 cm long, rusty tomentose; petals 1.2–1.6 cm long. Pods 2–2.5 x 0.9 cm; villous tomentose; valves coriaceous with transverse grooves; seeds 3 or 4, oblongoid, reddish brown with pale specks; aril not as broad as the seed.

Eastern tropical Queensland. Common on hillsides among granite boulders in eucalypt forests. Flowers and fruits March to November.

Queensland. COOK DISTRICT: head of Emu Creek, S. of Irvinebank, Mar 1962, *Whitehouse*. NORTH KENNEDY DISTRICT: Herberston, Jan 1912, *Kenny*, Mar 1917, *Ringrose*, & Feb 1918, *Michael* 386; Ravenswood, Mar 1943, *Blake* 14875; Mt Stuart, May 1965, *Macfarlane*; Edwards I., May 1969, *Heatwole*; Hayman I., June 1934, *White* 10118. PORT CURTIS DISTRICT: Canoona, Sep 1943, *Blake* 15320, & Aug 1964, *Gillins* 879. LEICHHARDT DISTRICT: 20 miles SW of Rolleston, Mar 1959, *Tyson*.

Specimens from the Port Curtis District have somewhat smaller leaves than those from farther north.

5. *Atylosia lanceolata* W.V. Fitzg., Proc. Roy. Soc. West. Aust. 3:156 (1916). **Type:** Mt Broome, *Fitzgerald* (PERTH, *holo*).

Erect shrubs up to 3 m high, branchlets slender, pale yellowish or white silky tomentose with appressed hairs. Leaves unifoliolate or digitately trifoliolate, lateral leaflets absent on flowering shoots; petioles 0.5–2 cm long, leaflets narrowly oblong ovate or linear lanceolate 8.5–10 x 0.8 cm, tips obtuse usually with a short mucro, bases acute; densely tomentose, soft and rugose above; nerves prominent below, basal pair of lateral nerves arched and ascending uniting with others to form an intramarginal vein; petiolules 2–3 mm long. Inflorescences axillary, racemose, 0.5–1 cm long, usually 2–5 flowered, uppermost inflorescences occasionally forming a short terminal panicle through suppression of leaves. Flowers 8–10 mm long; pedicels 4 mm long. Calyces 6 x 3 mm, lobes lanceolate, acuminate, longer than tube, with appressed silky yellow tomentum. Petals 8–10 mm long, wings and keels shorter than standard. Pods oblong, 1.8–3.5 x 0.8 cm, tomentose, short hairs intermixed with pale long hairs; valves coriaceous with transverse depressions between the seeds; seeds 3–5.

Limited to the Kimberley region of Western Australia, usually on rocky red loam and sandstone, on slopes. Flowers and fruits May to July.

Western Australia. Lawley River, Jul 1921, *Gardner* 1465 (PERTH); Bushfire Hill, Prince Regent River, Aug 1974, *George* 12291 (K, PERTH); 9 miles W. of Mt House, Jul 1959, *Lazarides* 6447 (PERTH); Camballin, May 1970, *Power* 930 (PERTH).

6. *Atylosia acutifolia* (F. Muell. ex Benth.) Reynolds & Pedley, *comb. nov.* Based on *Rhynchosia acutifolia* F. Muell. ex Benth., Fl. Aust. 2:266 (1864). **Type:** Upper Victoria River, Feb 1856, *Mueller* (MEL 61477; lectotypus novus). *Rhynchosia quadricullosa* Domin, *Biblioth. Bot.* 89:228 (1926). **Type:** Savannewalder bei Pentland, Mar 1910, *Domin* (PR, not seen; BRI, photo).

Erect shrubs to 2 m; branchlets with appressed tomentum. Leaves pinnately trifoliate; petioles 0.6–4 cm; rachises 0.7–1.5 cm long; leaflets ovate-elliptic acuminate or elliptic, 3.5–5 x 0.8–2.5 cm, tips acuminate, acute, rarely obtuse, bases acute or obtuse and rounded, suboblique on lateral leaflets, tomentose to subglabrous and copiously resin-dotted on both surfaces, semicoriaceous, discolorous, darker green and often with silvery sheen above, not rugose; nerves very fine, lateral ones 4–7 pairs, obliquely arched, reticulate venation lax, very fine; terminal petiolules 0.8–1 cm long, lateral ones 2–4 mm. Inflorescences axillary, 1–3 in each axil, 2–9.5 cm long; peduncles 1.5–7 cm long, slender, bearing a subumbellate raceme of 5–10 flowers towards their tips. Flowers yellow, about 1.2 cm long; pedicels 6 mm long. Calyces subcampanulate, 6–7 x 3 mm, resin-dotted and tomentose outside, tube 3 mm long, lobes ovate, usually acuminate, 3–4 mm long. Petals to 1 cm long, standard red-streaked. Pods 2–2.5 x 0.8 cm, apiculate at the oblique apex, narrow at base, valves coriaceous with oblique or straight grooves, tomentose with short hairs; usually 2 or 3 seeded (rarely 4), seeds oblongoid, aril not as broad as seed.

Ranges from the southern part of the Kimberley region and northern part of the Northern Territory to about 22°S latitude in Queensland, on rocky outcrops and gullies or on sand. Flowers and fruits February to October.

Western Australia. Camballin, May 1970, *Power* 869 (PERTH). **Northern Territory.** Daly River, township area, *Robinson* C.S.R. 1 (NT); Coomalie Creek, 13°02'S 131°07'E, Mar 1974, **Parker* 363 (BRI, NT); 11 miles S of Katherine, Feb 1961, **McKee* 8488 (BRI); Groote Eylandt, Jul 1972, *Dunlop* 2645 (BRI, NT); Sir Edward Pellew group, 15°43'S 136°49'E, Feb 1976, *Craven* 3815 (BRI); McArthur River area, 16°40'S 135°51'E, May 1976, *Craven* 3979 (BRI); 30 miles S of "McArthur River" Stn, Jul 1948, *Perry* 1722 (BRI). **Queensland:** BURKE DISTRICT: Mt Isa, Mar 1949, *McFarlane* (BRI), May 1952, *Morris* (BRI), & Oct 1974, *Specht & Rogers* 74 (BRI); Adels Grove, Jun 1947, *de Lestang* 374 (BRI) & Feb 1948, *de Lestang* 400 (BRI). GREGORY NORTH DISTRICT: Duchess, Feb 1931, *Hubbard* 7374 (BRI, K). COOK DISTRICT: 53 miles W of Georgetown, Jul 1960, *Trappell* 220 (BRI); Laura River area, May 1975, **Byrnes* 3296; Rocky Tate River crossing, Etheridge Railway, Feb 1922, *White* 1354 (BRI). NORTH KENNEDY DISTRICT: Red Falls area ca 40 km WNW of Charters Towers, Jul 1974, *Jacks* (BRI).

Specimens with an asterisk in those cited above differ from the rest in being less pubescent (and therefore appearing greener) and having pods with 1 or 2 seeds with oblique transverse grooves between them. They represent a variant found on sandstone in both the Northern Territory and the southern part of Cape York Peninsular which may be an incipient subspecies.

The sheet MEL 61477 is chosen as the lectotype because other sheets MEL 61476 and MEL 61478 which bear the same collecting data do not match the description of *Rhynchosia acutifolia*. They are probably *Rhynchosia* sensu stricto. Another syntype of *R. acutifolia* (Nichol Bay, *Gregory*) is *Atylosia pubescens*. The Gilbert River specimen is too fragmentary to be considered as a type and we did not see the Cunningham specimen cited by Bentham.

Bentham noted in the protologue to *Rhynchosia acutifolia* that a pod with the specimen from Gilbert River had 3 ovules but that all ovaries he examined had only 2 ovules. In fact pods occasionally have four seeds and *R. acutifolia* is better placed with species of *Atylosia* than referred to *Rhynchosia*.

7. *Atylosia cinerea* F. Muell. ex Benth., Fl. Aust. 2:264 (1864). Type: Upper Victoria River, *Mueller* (MEL 47634, lectotypus novus).

Sparse, grey, densely hairy shrubs to about 2 m high, erect or straggly; branchlets softly white tomentose with silvery short close floccose hairs. Leaves pinnately trifoliate; petioles 1.2–3 cm; rachises 3–8 mm long; leaflets elliptic ovate 2–6.5 x 1.2–3.5 cm, tips obtuse, acute or rarely retuse, bases obtuse, discolorous, rugose, both surfaces softly velvety tomentose, with prominent resin glands; lateral nerves 5–7 pairs, oblique, subparallel, prominent and hairy above, reticulate venation not raised below; terminal petiolules 0.3–1.2 cm, lateral ones 0.3–0.5 cm. Inflores-

cences axillary, solitary, 1–5 cm long, racemose, usually 4–10 flowered, peduncles 1.7–4 cm long, slender. Flowers yellow, to 2 cm long; pedicels stout, 0.5–0.7 cm long. Calyces campanulate, 1 cm long, velvety, lobes subequal, short, to 5 x 2 mm, ovate, obtuse or acute, usually ribbed. Petals to 2 cm long, standard yellow with brownish streaks. Pods 2.5–3 x 1 cm, velvety tomentose with short hairs; seeds 4–6, broadly oblong, reddish brown with dark specks, aril not as broad as the seed.

Ranging from about 118°E to 134°E longitude but most frequently collected in the basins of the Fitzroy and Victoria Rivers. It often occurs on limestone soils and outcrops in eucalypt woodland. Flowers and fruit April to August.

Western Australia. Near "Woodstock" Stn, in 1952, *Suijendorp* 18 (PERTH); Grant Range, May 1965, *Beard* 4225 (PERTH); Geikie Gorge, Fitzroy River, Aug 1965, *Beaulehole* ACB 11178 (PERTH); & May 1974, *Beard* 6953 (PERTH). 9.5 km SE of "Elquistro" H.S., N.E. Kimberleys, Mar 1978, *Lazarides* 8725 (BRI, CANB). **Northern Territory.** 107 km from Tanami (19°20'S 129°E), Aug 1971, *Gittins* 2289 (BRI); 51 miles N of Tennant Creek, Apr 1948, *Perry* 643 (BRI).

A lectotype has been chosen so as to exclude the other syntype (Nichol Bay, *Gregory*). This is the same as one of the syntypes of *Rhynchosia acutifolia* from the same locality and both specimens are referred to *A. pubescens*.

8. *Atylosia latisejala* Reynolds & Pedley, nom. et stat. nov. Based on *A. grandifolia* F. Muell. ex Benth. var. *calycina* Benth., Fl. Aust. 2: 264 (1864). **Type:** Victoria River, *Mueller* (MEL, iso).

Spreading, grey, densely hairy shrubs to 1 m high, branchlets villous tomentose. Leaves pinnately trifoliate; petioles 1–4 cm; rachises 4–8 mm long; leaflets elliptic-ovate or elliptic, 1.5–6.5 x 0.8–3 cm, tips obtuse, bases rounded, subcordate or obtuse, rugose especially above, tomentose on both surfaces, lower surfaces strongly reticulate with white, raised, compact reticulations, bullate between nerves, impressed above, lateral nerves 4–5 pairs, oblique; terminal petiolules 0.5–1.5 cm, lateral ones about 3 mm long. Subumbellate racemes axillary, solitary, 3.5–7 cm long, usually 4–8 flowered, peduncles 0.5–2 cm, long. Flowers yellow, about 1.5 x 0.5 cm; pedicels 0.6–1.2 cm, slender. Calyces 1.4 x 0.5 cm, softly villous tomentose, lobes oblong-ovate-acuminate with a midrib, concave, pink, longer ones up to 0.3 cm wide. Petals about 1.2 cm long, standard with red streaks, broadly obovate. Pods about 1.7 x 0.8 cm, densely villous with pale hairs, seeds usually 2(–4), obovoid, reddish brown with pale streaks, aril narrower than seed. Fruiting calyx lobes showy, pink, persistent.

Common on sandy rocky soil on upper slopes of sandstone ranges and hills in open grassland. Flowers and fruits April to October.

Northern Territory. Keep River area (15°46'S 129°02'E), Sep 1975, *Henshall* 1100 (BRI); Jasper Gorge, Victoria River (16°02'S 130°41'E), Oct 1958, *Chippendale* NT 5035, & Sep 1974, *Parker* 459 (DNA); "Kildurk" Stn, May 1969, *Byrnes* 1566 (DNA). **Western Australia.** "Ivanhoe" Stn, N.E. Kimberleys, *Langfield* 382 (PERTH); 16 km S of Kununurra, Aug 1968, *Blockley* 886 (PERTH); Deception Range, E. Kimberleys, May 1971, *Byrnes* 2214 (DNA, PERTH); Middle Springs, Deception Range, Apr 1956, *Burbridge* 5161 (PERTH); Milligans Lagoon, E. Kimberley, Jun 1937, *Stokes* 21 (PERTH); 11 km E of "Dunham [? Denham] River", Stn, Jul 1949, *Perry* 2525 (BRI, PERTH); Brook Creek, Ord River, May 1944, *Gardner* 7213 (PERTH); Button's Gap, Lower Ord River, Jun 1944, *Gardner* 7420 (PERTH); near Alligator Springs, 110 km E of "Carlton" Stn, Jul 1949, *Perry* 2617 (BRI, PERTH).

Atylosia latisejala is a distinctive plant, particularly when in fruit, but it is closely related to both *A. reticulata* and *A. pubescens*. Intermediates between it and *A. reticulata* do occur where their ranges adjoin but despite this specific rank seems to be justified.

9. *Atylosia reticulata* (Dryander) Benth., Fl. Aust. 2:263 (1864). Based on *Dolichos reticulatus* Dryander in Aiton, Hort. Kew. ed. 1. 3:33 (1789). **Type:** Endeavour River, Jun-Aug 1770, *Banks & Solander* (BM, holo).

Atylosia grandifolia Benth., Fl. Aust. 2:264 (1864). **Types:** Port Denison, *Dallachy* (MEL, iso); Burdekin Expedition, *Fitzalan* (MEL, iso).

Shrubs usually erect or scandent to 2 m high, sometimes spreading to 0.7 m wide; branchlets rusty tomentose or hoary tomentose. Leaves pinnately trifoliolate; petioles 1.5–6 cm long; rachises 0.5–3 cm; leaflets elliptic ovate, broadly ovate, rhomboidal or subobtusate, 2.5–11.5 x 2.5–7 cm, tips acute, obtuse or rounded, bases obtuse or subcordate, semicoriaceous, subrugose, puberulent, pubescent or white tomentose. Inflorescences 1–5 per axil, racemose. Flowers yellow, 0.5–1.4 cm long; pedicels at first short, 0.5–1.2 cm long, slender. Calyces 1.6–2 cm long, densely villous, lobes linear, subulate, flexuose, the upper ones about 3 times as long as the tube, laterals shorter. Petals *ca* 1.4 cm long. Pods 2–3 x 0.6–1 cm, tomentose, valves coriaceous, grooves oblique to transverse; seeds 2–5, obovoid or oblonged, aril narrower than the seed.

The most widely spread and most variable of the Australian species of *Atylosia*, ranging from the Cambridge Gulf area of Western Australia to the Burnett District of Queensland. Two subspecies are recognised, one restricted to the north-western Gulf of Carpentaria. Variation within one of these is considerable but formal recognition of other variants is not warranted.

9a. *A. reticulata* subsp. *reticulata*

Stems erect or scandent, branchlets rusty tomentose. Petioles 2.2–6 cm; rachises 0.6–3 cm; leaflets 4.5–11.5 x 2.5–7 cm, elliptic ovate, broadly ovate or rhomboidal with acute or obtuse tips, pubescent or puberulent, semi-coriaceous, subrugose, lateral nerves 4–7 pairs, reticulate venation lax, fine, slightly impressed above. Inflorescences 1–5 per axil, 2.5–12.5 cm long, peduncles 1–7 cm long bearing a subumbellate raceme of 6 or 7 flowers, upper peduncles short, forming an irregular terminal panicle. Flowers yellow, 1.5–1.8 cm long, pedicels 0.5–1.2 cm long, slender. Calyx lobes linear, subulate, flexuose, rusty villous tomentose. Pods 2.5 x 0.8 cm, 2–5-seeded, valves coriaceous, rusty villous tomentose.

Wide ranging in low eucalypt communities and grassland, sometimes on limestone.

Western Australia. Deception Range, Feb 1950, *Langfield* 170 (PERTH). **Northern Territory:** Daly River, 1 mile N of "Florina", Sep 1968, *Robinson* CSR 65 (NT); 57 miles S of Darwin, Jun 1969, *Byrnes* 1412 (NT); Katherine Gorge, Mar 1964, **Lazarides* 7030 (BRI, PERTH); 57 miles E of Pine Creek, Feb 1969, **Byrnes* 1392 (NT). **Queensland.** BURKE DISTRICT: Settlement Creek 30 miles from Coast, June 1958, *Perry* 119 (BRI). COOK DISTRICT: Dinner Creek on Silver Plains-Coen Road, Nov 1956, *Webb* 3200 (BRI); Mossman River, Feb 1932, **Brass* 2151 (BRI); Parada, Feb 1958, *Keefer* 43 (BRI); Watsonville, Feb 1962, *Hyland* AFO 2808 (BRI). NORTH KENNEDY DISTRICT: Near Cardwell, 18°13'S 145°56'E, Jan 1976, *Thorsbourne & Thorsbourne* 138 (BRI); Mt Saunders near Yabula, Aug 1942, *Smith* T109; Proserpine, Mar 1935, *Macpherson* 757 (BRI). LEICHHARDT DISTRICT: Expedition range, Aug 1960, *Gittins* 362 (BRI). PORT CURTIS DISTRICT: 7.3 miles E of Marlborough, Aug 1963, *Speck* 1756 (BRI). WIDE BAY DISTRICT: Biggenden, Oct 1930, *White* 7295 (BRI).

A lax-flowered variant is included in this taxon. It has graceful inflorescences and thin acute leaves which are not rugose. All specimens seen are marked with an asterisk above.

9b. *A. reticulata* subsp. *maritima* Reynolds & Pedley, subsp. nov.

Caules prostrati incanotomentosi pilis albis. Folioli 2.5–4.2 x 2.5–3.7 cm rhomboidei vel sub-biculares apicibus rotundatibus vel obtusis dense albotomentosi molles, leviter rugosi 3 paribus nervosum lateralfum praediti. Racemi apicibus ramulosum longorum usque 2.5 cm longi pendunculis tenuibus. Flores viride flave *ca* 1.5 cm longi; pedicelli 0.8 cm longi; calyces lobi flexuosi subulati albotomentosi. Legumina *ca* 3 x 1 cm, 3–4 seminibus valvis coriaceis albotomentosis. **Typus:** *Specht* 714 (BRI, holotypus).

Stems prostrate, spreading, hoary tomentose with white villous hairs. Petioles 1.5–4 cm; rachises 0.5–1 cm; leaflets 2.5–4.2 x 2.5–3.7 cm, rhomboidal or sub-bicular with rounded or obtuse tips; densely white tomentose, soft, slightly rugose,

lateral nerves 3 pairs, lowermost pair oblique with arched side nerves, reticulate venation impressed above, slightly raised below. Racemes solitary at the tips of long lateral branchlets, 4.5–16.5 cm long, peduncles slender 1–10 cm. Flowers bright yellow, ca 1.4 cm long; pedicels 0.8 cm long; calyx lobes flexuose, subulate, white tomentose. Pods ca 3 x 1 cm, 3 or 4-seeded, valves coriaceous, white tomentose.

Groote Eylandt and adjacent coasts of Arnhem Land, common on coastal dunes, forming sprawling clumps. Flowers and fruits April to July.

Northern Territory. Port Bradshaw, Jul 1948, *Specht* 714 (BRI), Bickerton I., Jun 1948, *Specht* 503 (BRI); Groote Eylandt, Apr 1948, *Specht* 258 (PERTH) & 277 (BRI, PERTH).

There are several specimens from the Northern Territory and Western Australia with the general appearance of *A. reticulata* and broadish sepals approaching those of *A. latisejala*. They were collected where the ranges of the two species adjoin and may indicate some gene exchange between them.

Western Australia. King Leopold Ranges, 8.5 miles SE of "Bedford Downs" Stn, Jul 1960, *Lazarides* 6378 (CANB); about 1 mile N of mouth of Revolver Creek, base of the southern Carr Boyd Range, 16°14'S 128°34'E, Mar 1978, *Hartley* 14540 (CANB, NT). **Northern Territory.** 101 miles SE of "Carlton" Stn, Jul 1957, *Perry* 3008 (BRI, PERTH)

10. *Atylosia pubescens* (Ewart & Morrison) Reynolds & Pedley, comb. nov. Based on *Tephrosia pubescens* Ewart & Morrison, Proc. Roy. Soc. Victoria 26 n.s.:163 (1913); Ewart & Davies, Flora North. Terr.:147 (1917). **Type:** Top Spring, Aug 1911, *G.F. Hill* 535 (MEL).

Erect grey shrubs to 2 m, branchlets softly tomentose with thick appressed hairs or with long spreading hairs. Leaves pinnately trifoliolate; petioles 1–6.5 cm; rachises 2–6 mm long; leaflets obovate-elliptic to elliptic, 2–5 x 1.2–3.5(–4) cm, tips obtuse, rounded or mucronate, bases obtuse, discolorous, rugose, tomentose, hairs sometimes long, upper surfaces with a silvery sheen; lateral nerves 5–7 pairs, deeply impressed above, reticulate venation, compact, prominent and raised below, bullate between nerves; terminal petiolules 0.5–1.5 cm, lateral ones 0.2–0.5 cm. Inflorescences axillary, solitary, racemose rarely paniculate, 3–19 cm long; peduncles 2.5–9 cm long, rarely branched, stout, rusty tomentose, usually exceeding the leaves and bearing a compact subumbellate raceme of 6–10 flowers towards their tips. Flowers yellow 1.5–2 cm long; pedicels 1–1.5 cm long, stout. Calyces campanulate, 1–1.5 x 0.5 cm, rusty villous, resin-dotted, lobes ovate or narrowly ovate, acuminate, 0.5–0.8 cm, tube 0.3–0.5 cm. Petals 1–1.8 cm long, standard with dark reddish veins. Pods 2.5–3.5 x 0.8–1 cm softly tomentose with long and short hairs, valves coriaceous with usually oblique, transverse grooves between the seeds; seeds 3–5, broadly obovoid, reddish brown with dark specks; aril not as broad as the seed.

A variable species which ranges from Nichol Bay to Cloncurry with one specimen from Ajana some 700 km south of the nearest collection locality, the Hamersley Range. One variant known from only two collections, is described as a new variety.

10a. *A. pubescens* var. *pubescens*

Indumentum of stems appressed and of leaves rather short.

Western Australia. Ajana, Sep 1958, *D.H. Perrys*.n. (PERTH); Wittenoom Gorge, May 1952, *Birkways*.n. (PERTH), Sep 1957, *Stewart*.n. (PERTH) & Jul 1958, *McMillan*.n. (PERTH); Dolphin I., Dampier Arch., Jun 1962, *Royce* 7164 & 7224 (PERTH); between Liveringa & Mt Anderson, Feb 1953, *Broadbent* 681 (PERTH); Lennard River, 10 miles above junction with Barker River, May 1905, *Fitzgerald* 580 (PERTH); Fitzroy Crossing, May 1927, *Ewart* s.n. (PERTH); 8 miles SE of Halls Creek, May 1944, *Gardner* 7163 (PERTH); King River Gorge, ± 15 km SW of "Bedford Downs", Jun 1976, *Beaglehole* 53652 (NT); Bindoola Creek, El Questo-Gibb River road, ± 55 km SW of Wyndham, May 1976, *Beaglehole* 51373 (NT); Ord River Gorge, Jun 1944, *Gardner* 7336 (PERTH). **Northern Territory.** 53 km SW of "Victoria River" H.S., 16°38'S 130°42'E Jun 1974, *Latz* 5307 (DNA); Cox River, 16°01'S, 134°46'E, Jul 1977, *Henshall* 1683 (BRI, CANB); McArthur River area, 16°32'S, 136°, Jun 1976, *Craven* 4084 (BRI, CAN); 30 miles S of McArthur River, Jul 1948, *Perry* 1690 (BRI); Settlement Creek, Jan 1948, *Perry* 1197

(BRI). Queensland. BURKE DISTRICT. "Riversleigh", Jun 1963, *Gittins* 802 (BRI) & Jun 1966, *Pedley* 2063 (BRI); Corella Dam near Cloncurry, Aug 1959, *Sillar* s.n. (BRI); Fountains Springs area, 25 km S of Mary Kathleen, 20°58'S 139°56'E, *Farrell* TF 873 (BRI).

10b. *A. pubescens* var. *mollis* Reynolds & Pedley, var. nova

differt ab *A. pubescens* var. *pubescens* indumento caulium et petiolorum longo effuso et foliorum longiore molle. Legumen ignotum. **Typus:** *Cole* et al. 9098 (BRI, holotypus):

Differs from var. *pubescens* in the indumentum of the stems and petioles being long and spreading, and of the leaves soft and longer. The pods are unknown. Type: *Cole* et al 9098 (BRI, holo).

Collected only in the Cloncurry area in mineralised areas. Flowering in April and July.

Queensland. BURKE DISTRICT: 2 miles S of "Wee McGregor" mine [near Ballara approx. 21°S 140°E] growing over schistose rocks, Jul 1974, *Cole* et al. 9098 (BRI); 13 miles on road to Ballara, Apr 1974, *Cole* et al 9013 (BRI).

Though *A. pubescens* var. *mollis* is a distinctive plant it has been collected only twice. Until more material, including fruits, is seen we prefer to take a rather broad view of *A. pubescens* and place it there.

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